

**WHAT IS CLAIMED IS:**

1. A system for increasing security screening efficiency comprising:
  - 2 a gateway between a non-sterile area and a sterile area;
  - 3 a screening queue for the sterile gateway;
  - 4 a tray slide positioned adjacent to the screening queue, wherein the tray slide comprises a sidewall and a support surface, wherein the tray slide is operable to deliver a tray to a screening subject in the screening queue.
1. 2. The system of claim 1, further comprising a tray conveyance coupled to the tray slide.
1. 3. The system of claim 1, wherein the gateway comprises a detection apparatus, the detection apparatus adapted to detect items prohibited from entering the sterile area.
1. 4. The system of claim 3, wherein the screening queue is defined by a direction of travel, the direction of travel operable, when followed, to direct passengers from the non-sterile area to the sterile area.
1. 5. The system of claim 4, wherein the tray slide is coupled to a table disposed between the tray slide and the screening queue.
1. 6. The system of claim 1, wherein the tray slide includes an elevated portion.
1. 7. The system of claim 6, further comprising a receiving portion, the receiving portion adapted to receive trays and collocated with the elevated portion.
1. 8. The system of claim 1, wherein the tray slide comprises a plurality of tray slide sections, each of the plurality of tray slide sections having a similar width and coupled to at least another of the plurality of tray slide sections.
1. 9. The system of claim 2, wherein the tray conveyance comprises a roller bed.
1. 10. The system of claim 9, wherein the roller bed comprises a plurality of wheels.

- 1 11. The system of claim 9, wherein the roller bed comprises a plurality of cylindrical rollers,  
2 each of the plurality of cylindrical rollers having a longitudinal axis, and wherein the  
3 longitudinal axis is the axis of rotation of the cylindrical rollers.
- 1 12. The system of claim 2, wherein the tray conveyance comprises a conveyor belt.
- 1 13. The system of claim 1, wherein the sidewall is affixed to the tray slide and operable to  
2 confine the tray to the tray slide.
- 1 14. The system of claim 13, wherein the sidewall comprises at least two sidewalls, the at  
2 least two sidewalls affixed to the tray slide such that each of the at least two sidewalls  
3 extend substantially the entire length of the tray slide.
- 1 15. The system of claim 6, wherein the plurality of tray slide sections comprises a plurality of  
2 rectangular-shaped sections, wherein each of the plurality of rectangular-shaped sections  
3 has substantially similar dimensions.
- 1 16. The system of claim 8, wherein the plurality of tray slide sections form a curved tray  
2 slide, wherein the curved tray slide defines a direction of travel corresponding to the  
3 screening queue.
- 1 17. The system of claim 16, wherein the screening queue comprises two screening queues.
- 1 18. The system of claim 1, further comprising a means for delivering the tray to the  
2 passenger.
- 1 19. The system of claim 18, wherein the means for delivering the tray comprises a plurality  
2 of rollers coupled to the tray slide.
- 1 20. The system of claim 18, wherein the means for delivering the tray comprises a motorized  
2 conveyor belt.
- 1 21. The system of claim 1, further comprising a table positioned between the tray slide and  
2 the screening queue.

- 1        22. The system of claim 21, wherein the tray slide is coupled to the table, and wherein a  
2                  portion of the table is exposed between the tray slide and the screening queue.
- 1        23. The system of claim 1, further comprising a retrieval portion, the retrieval portion located  
2                  at a portion of the tray slide distal from the gateway.
- 1        24. The system of claim 23, further comprising an end wall, the end wall positioned at the  
2                  retrieval portion of the tray slide and adapted to prevent the trays from leaving an area of  
3                  the tray slide bounded by the end wall and the sidewalls.
- 1        25. The system of claim 23, further comprising a tray dispenser positioned at the distal end of  
2                  the tray slide from the gateway, the tray dispenser adapted to retain trays delivered to the  
3                  retrieval portion.
- 1        26. The system of claim 25, wherein the tray dispenser further comprises:  
2                  an aperture adapted to allow the tray to fit at least partially therethrough;  
3                  a platform adapted to support the tray; and  
4                  a support system, the support system operable to maintain the tray at a height  
5                  substantially constant in relation to the retrieval portion.

1        27. A system for providing security screening, comprising:

2              a tray slide, wherein the tray slide is operable to transport an article from a sterile area  
3              to a non-sterile area, with entry to the sterile area requiring passage through a detection  
4              device; and  
5              a screening queue adjacent to the tray slide, wherein the screening queue defines a  
6              path from the non-sterile area to the sterile area.

1        28. The system of claim 27, wherein the detection device is a baggage scanner, the baggage  
2              scanner operable to detect prohibited items introduced to the sterile area, and wherein the  
3              detector is the threshold between the sterile area and the non-sterile area.

1        29. The system of claim 28, wherein the tray slide comprises a plurality of sections, each of  
2              the plurality of sections operable to be coupled to another of the plurality of sections.

1        30. The system of claim 27, wherein the tray slide comprises an elevated portion and a non-  
2              elevated portion, the elevated portion operable to impart a gravitational potential energy  
3              to an item placed on the conveyance at the elevated portion, the potential energy operable  
4              to deliver the item through the length of the elevated portion to the non-elevated portion.

5        31. The system of claim 27, further comprising a means for propelling the article from the  
6              sterile area to the non-sterile area.

7        32. The system of claim 31, wherein the means for propelling the screening tray from the  
8              sterile area to the non-sterile area comprises an elevated portion of the tray slide, the  
9              elevated portion operable to impart a gravitational potential energy to an article placed on  
10              the elevated portion of the tray slide.

1        33. The system of claim 32, wherein the means for propelling the article comprises:  
2              a plurality of rollers, wherein the plurality of rollers further comprises a rotational  
3              drive mechanism for turning one of the plurality of rollers; and  
4              a belt disposed around the plurality of rollers, wherein the belt rotates around the  
5              plurality of rollers due to the rotational force applied to the belt from the one of the  
6              plurality of rollers.

- 1        34. The system of claim 27, further comprising a table disposed between a portion of the tray
- 2              slide and the screening queue, wherein the tray conveyance is coupled to the table.
- 1        35. The system of claim 27, further comprising a tray dispenser, wherein the tray dispenser is
- 2              located adjacent to the retrieval portion.
- 1        36. The system of claim 35, wherein the tray dispenser is adapted to receive the tray from the
- 2              tray slide.
- 1        37. The system of claim 36, the tray dispenser further comprising:
  - 2              an aperture adapted to allow the tray to fit at least partially therethrough;
  - 3              a platform adapted to support the tray; and
  - 4              a support system, the support system operable to maintain the tray at a height
  - 5              substantially constant in relation to the retrieval portion.

1       38. A method for providing security screening comprising:  
2             establishing a first screening queue to direct passengers from a non-sterile area to a  
3             sterile area, the screening queue comprising a start point and passing through a sterile  
4             threshold, the sterile area comprising an area to which access is controlled, wherein  
5             access to the sterile area requires screening for prohibited items through the sterile  
6             threshold;

7             positioning a tray slide adjacent to a divestment table, the divestment table accessible  
8             from the screening queue, the tray slide comprising a sidewall;  
9             placing trays into the tray slide; and  
10            facilitating movement of the trays along the tray slide toward the start point of the  
11            screening queue.

1       39. The method of claim 38, wherein the tray slide is coupled to the divestment table.

1       40. The method of claim 38, further comprising establishing a second screening queue,  
2            wherein the tray slide is disposed between the first screening queue and the second  
3            screening queue.

1       41. The method of claim 38, wherein the tray slide is operable to return trays from the sterile  
2            area to the non-sterile area.

1       42. The method of claim 38, further comprising coupling a conveyor system to the tray slide.

1       43. The method of claim 42, wherein the conveyor system comprises a plurality of rollers  
2            coupled to the tray slide.

1       44. The method of claim 43, wherein the plurality of rollers comprises a roller bed.

1       45. The method of claim 43, wherein the plurality of rollers comprises a plurality of skate  
2            wheels.

1       46. The method of claim 43, further comprising a conveyor belt disposed around the plurality  
2            of rollers.

1       47. The method of claim 38, wherein the tray slide is operable to return trays from a first  
2              position in the non-sterile area to a second position in the non-sterile area, wherein the  
3              first position is closer in proximity to the sterile threshold than the second position.

1       48. A system for increasing security screening efficiency comprising:  
2              a gateway between a non-sterile area and a sterile area;  
3              a screening queue for the sterile gateway;  
4              a tray slide positioned adjacent to the screening queue, wherein the tray slide  
5              comprises a tray conveyance and a support surface, wherein the tray slide is operable to  
6              deliver a tray to a screening subject in the screening queue.

1       49. The system of claim 48, further comprising a sidewall coupled to the tray slide.

1       50. The system of claim 48, wherein the gateway comprises a detection apparatus, the  
2              detection apparatus adapted to detect items prohibited from entering the sterile area.

1       51. The system of claim 50, wherein the screening queue is defined by a direction of travel,  
2              the direction of travel operable, when followed, to direct passengers from the non-sterile  
3              area to the sterile area.

1       52. The system of claim 51, wherein the tray slide is coupled to a table disposed between the  
2              tray slide and the screening queue.

1       53. The system of claim 48, wherein the tray slide includes an elevated portion.

1       54. The system of claim 53, further comprising a receiving portion, the receiving portion  
2              adapted to receive trays and collocated with the elevated portion.

1       55. The system of claim 54, wherein the tray slide comprises a plurality of tray slide sections,  
2              each of the plurality of tray slide sections having a similar width and coupled to at least  
3              another of the plurality of tray slide sections.

1       56. The system of claim 48, wherein the tray conveyance comprises a roller bed.

1       57. The system of claim 56, wherein the roller bed comprises a plurality of wheels.

1       58. The system of claim 56, wherein the roller bed comprises a plurality of cylindrical rollers,  
2              each of the plurality of cylindrical rollers having a longitudinal axis, and wherein the  
3              longitudinal axis is the axis of rotation of the cylindrical rollers.

- 1        59. The system of claim 48, wherein the tray conveyance comprises a conveyor belt.
- 1        60. The system of claim 49, wherein the sidewall is affixed to the tray slide and operable to  
2              confine the tray to the tray slide.
- 1        61. The system of claim 60, wherein the sidewall comprises at least two sidewalls, the at  
2              least two sidewalls affixed to the tray slide such that each of the at least two sidewalls  
3              extend substantially the entire length of the tray slide.
- 1        62. The system of claim 53, wherein the plurality of tray slide sections comprises a plurality  
2              of rectangular-shaped sections, wherein each of the plurality of rectangular-shaped  
3              sections has substantially similar dimensions.
- 1        63. The system of claim 55, wherein the plurality of tray slide sections form a curved tray  
2              slide, wherein the curved tray slide defines a direction of travel corresponding to the  
3              screening queue.
- 1        64. The system of claim 63, wherein the screening queue comprises two screening queues.
- 1        65. The system of claim 48, further comprising a means for delivering the tray to the  
2              passenger.
- 1        66. The system of claim 65, wherein the means for delivering the tray comprises a plurality  
2              of rollers coupled to the tray slide.
- 1        67. The system of claim 65, wherein the means for delivering the tray comprises a motorized  
2              conveyor belt.
- 1        68. The system of claim 48, further comprising a table positioned between the tray slide and  
2              the screening queue.
- 1        69. The system of claim 68, wherein the tray slide is coupled to the table, and wherein a  
2              portion of the table is exposed between the tray slide and the screening queue.
- 1        70. The system of claim 48, further comprising a retrieval portion, the retrieval portion  
2              located at a portion of the tray slide distal from the gateway.

- 1        71. The system of claim 70, further comprising an end wall, the end wall positioned at the  
2                  retrieval portion of the tray slide and adapted to prevent the trays from leaving an area of  
3                  the tray slide bounded by the end wall and the sidewalls.
- 1        72. The system of claim 70, further comprising a tray dispenser positioned at the distal end of  
2                  the tray slide from the gateway, the tray dispenser adapted to retain trays delivered to the  
3                  retrieval portion.
- 1        73. The system of claim 72, wherein the tray dispenser further comprises:  
2                  an aperture adapted to allow the tray to fit at least partially therethrough;  
3                  a platform adapted to support the tray; and  
4                  a support system, the support system operable to maintain the tray at a height  
5                  substantially constant in relation to the retrieval portion.
- 1        74. The system of claim 48, further comprising a tray stop adapted to prevent movement of  
2                  trays along the tray slide.
- 1        75. The system of claim 48, wherein the tray slide forms a continuous loop.

- 1        76. A method for conducting security screening operations, comprising:
  - 2              placing trays in a tray slide;
  - 3              moving the trays along the tray slide toward a retrieval portion of the tray slide,
    - 4              wherein the retrieval portion of the tray slide is located adjacent to a queue that directs a
    - 5              screening subject from a non-sterile area to a sterile area, and wherein moving the trays
    - 6              includes directing the trays in a direction substantially opposite to the direction in which
    - 7              the queue directs the screening subject.
- 1        77. The method of claim 76, wherein the step of placing the trays in a tray slide includes
  - 2              placing the trays in a receiving portion of the tray slide, the receiving portion of the tray
  - 3              slide at a location distal from the retrieval portion of the tray slide.
- 1        78. The method of claim 77, wherein the receiving portion is located in the sterile area.
- 1        79. The method of claim 76, wherein the queue directs the screening subject from a sterile
  - 2              area to a non-sterile area through a gateway, the gateway.